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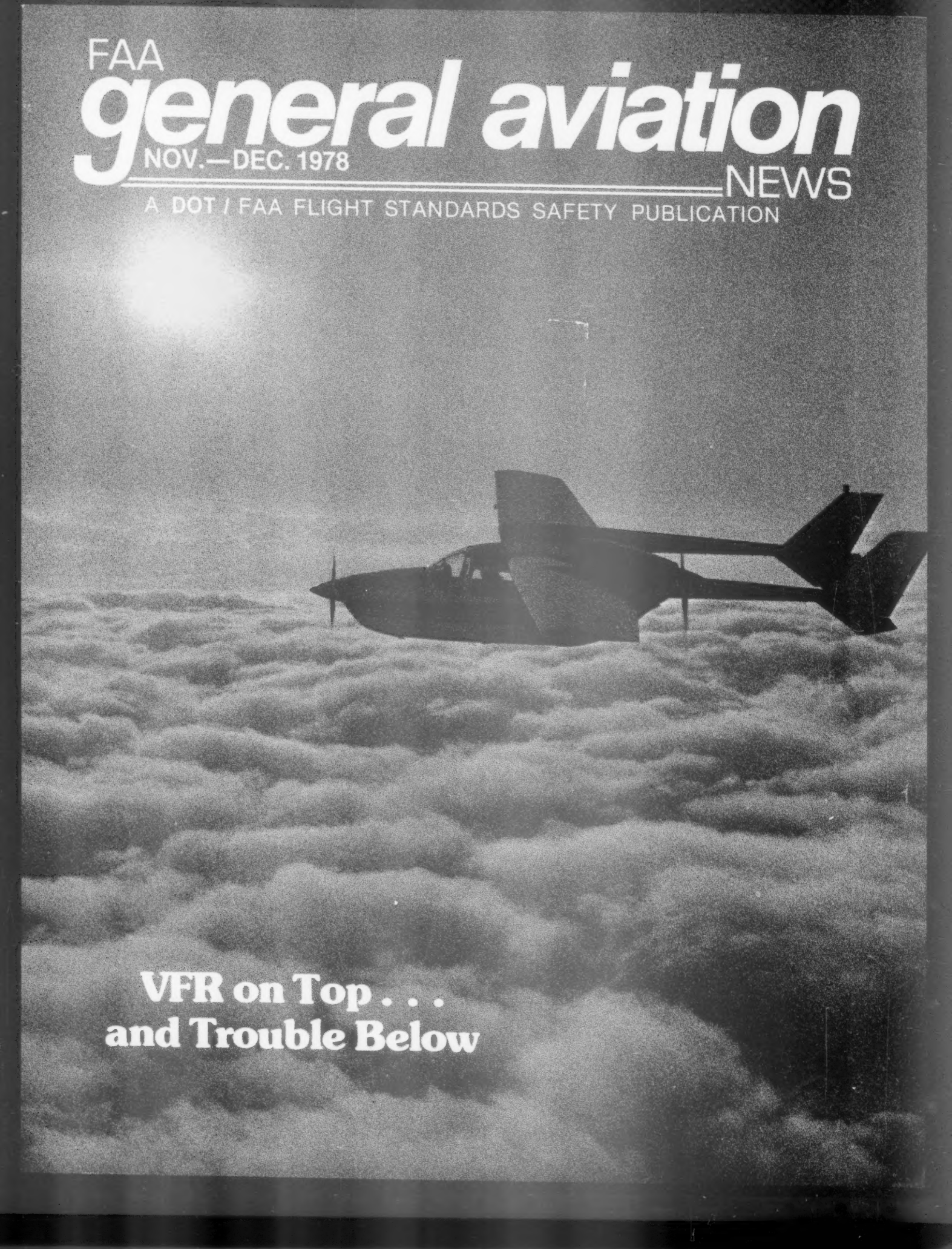

VFR on Top . . . and Trouble Below

FAA GENERAL AVIATION NEWS

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Return from The Craters of the Moon

The last thing the pilot remembered, before blacking out, was the sight of that enormous black crater and the jagged lava outcroppings, as he attempted to pancake his powerless *Bonanza* in for an emergency landing. Evidently the impact had been violent, and he sensed that he was lucky to have survived—so far, there was no fire. But as he struggled back into consciousness, with the immediate thought in mind that he must evacuate the airplane, he found himself unable to move a muscle. He could see blood dripping from his face but he had no feeling of pain, and then he realized, with a growing sense of horror, that he had suffered some kind of spinal injury and that he was completely paralyzed. Out of the corner of his eye he could see the young man who was his passenger, the only other occupant of the airplane, slumped over in his seat, either unconscious or dead. Outside the airplane there was nothing in view but the same bleak, weird looking landscape, dusted with fresh snow. "If it burns," he thought, "I'll be roasted alive. And if it doesn't, I could freeze to death here before anyone finds me." His efforts to cry out for help produced only muffled, half-articulate sounds, and then he realized that most of his teeth had been knocked out of his mouth. His only hope of early rescue lay in the portable ELT he remembered having stowed in the baggage compartment before taking off from Idaho Falls that morning. *Would it function? Would he be heard?*

On the following morning, Saturday, January 25, the Boise, Idaho flight service station received a telephone call from a woman who identified herself as Mrs. Roy Rice. She said that her husband, a pilot and an employee of the state Department of Environmental Health, was overdue on a flight back from Idaho Falls. She said that he was to have arrived back the previous evening but had not done so. His business office in Idaho Falls was closed and she had not been able to locate him at the hotel. At 11:47 a.m. local time an INREQ was issued to all stations within 50 miles of an assumed flight path between Idaho Falls and Boise. (An INREQ is a request for information concerning a particular aircraft which may be derived from communications between that aircraft and the air traffic service.) The Idaho State Division of Aeronautics, which directs general aviation search and rescue efforts in that area, was also alerted. Reports were received from the following stations:

IDAHO FALLS FSS. The pilot of a ***Bonanza*** *based at Boise, N4457D, called in by telephone at* ***7:41 a.m.*** *local time on the morning of January 24 and requested a weather briefing for a VFR return flight to Boise. The pilot held a private pilot's certificate and was not instrument rated. He was the owner of the aircraft, and his passenger was a fellow employee of the Environmental Health Department. The weather at this time for Boise was given as:*

Sky partially obscured, measured ceiling 3,000 feet overcast visibility 1 and ¼ miles, light rain and fog.

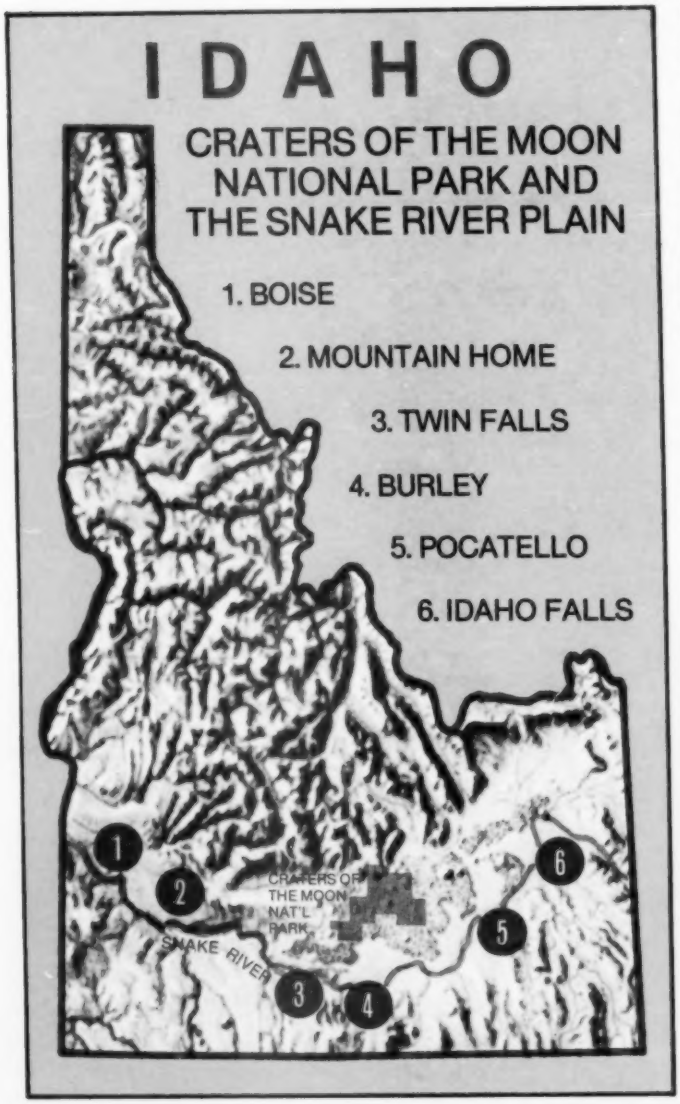
The FSS specialist advised that VFR flight along the normal route to Boise was not recommended. The pilot responded that he would call back later for further weather information. At ***9:07 a.m.*** *local time a pilot again identifying himself as the operator of Bonanza N4457D requested a weather briefing from the Idaho FSS for a VFR flight to Boise. The call was handled by a different specialist who informed the pilot that the weather had not changed appreciably in the last two hours and that VFR flight to Boise was still not recommended. There was no further contact with the aircraft.*

IDAHO FALLS AIR TRAFIC CONTROL TOWER. Records showed that a call had been received from the pilot of ***Bonanza*** *N4457D at* ***9:35 a.m.*** *on Friday, January 24, requesting taxiing information for a Burley (east) departure. The pilot also asked for a Special VFR clearance out of the Idaho Falls airport (Fanning Field) control zone. At this time Fanning had a measured ceiling of 400 feet overcast, with 10 miles visibility.*

The tower obtained release of an appropriate block of airspace below 6,500 feet in the control zone from the Salt Lake Air Route Traffic Control Center. A Special VFR clearance was issued to the ***Bonanza*** *pilot. Tower was to be notified when the pilot cleared out of the zone.*

The aircraft departed Fanning Field at ***9:40 a.m.*** *Approximately nine minutes later, when the aircraft had not yet reported out of the zone as expected, and the tower was unsuccessful in attempting to establish radio contact, the tower controller called Idaho Falls FSS and requested that they try to contact N4457D and have the pilot call back on 118.5. At* ***9:49 a.m.*** *N4457D called in. The pilot stated he had been calling the tower without response, and that he was clear of the control zone.*

There was no further contact with this aircraft.



BURLEY FLIGHT SERVICE STATION. Station records showed that a call had been received from an aircraft identified as N4457D at ***10:12 a.m.*** *on Friday, January 26, requesting current weather for Boise, Twin Falls City and Mountain Home Air Force Base. (The latter two airports are located along the Snake River, enroute to Boise.) After receiving the weather report, the pilot indicated he would be landing at Twin Falls. No further radio transmissions from N4457D were received at this station.*

The aircraft was not on a flight plan.

After receiving these reports regarding the *Bonanza* flown by Mr. Rice, the Boise FSS issued an ALNOT (Alert Notice) to all airports along the assumed line of flight, seeking information about N4457D from visual inspections of parked aircraft, service receipts, recollections of service personnel, etc. Response was negative. The Idaho Division of Aeronautics launched a SAR (search and rescue) mission at approximately **4 p.m.** local time.

The mission was made up of pilots and aircraft from the U.S. Air Force Base at Mountain Home, Idaho, and the Civil Air Patrol, plus local sheriffs, deputies and volunteers. Search efforts were carried out until dark on Saturday, resumed at daybreak on Sunday and continued throughout the day. Poor weather, including low clouds and intermittent snowfall, hampered search operations. By sundown results were completely negative. No sightings, no communications, nothing. The temperature had not risen above freezing during the day, and was expected to plunge below zero during the night.

On Monday morning the search was resumed, despite continuing poor weather and the low overcast. Hope of finding the occupants of the *Bonanza* still alive was diminishing with every passing hour, considering the subfreezing temperatures, and the wide expanse of territory to be covered by the searchers. The chances of a downed airman being rescued in time to prevent him from succumbing to exposure or injuries is almost always a factor of time. When there is no flight plan and no radio signal to guide the searchers, the time factor is apt to be overwhe.ming. A downed airplane is harder to spot than an aircraft in the sky; without verbal or aural clues it is much like finding a needle in a haystack.

In the case of N4457D, the difficulty was compounded by two additional factors:

1. **The unusually rugged terrain.** The *Bonanza* had gone down into one of the most astonishing stretches of landscape in the world, a Wilderness Area known as The Craters of the Moon. Thousands of years ago a massive outpouring of lava had spread molten destruction over some 83 square miles of southcentral Idaho, wiping out every form of plant and animal life. The heavy incrustration of

the earth remained much as it had formed, distinguished by weird shapes and rough surfaces, largely barren of trees and inhospitable to living creatures, studded with cinder cones, grotesque craters, caves and crevices. Long regarded with religious awe by Indian tribes who believed it to be the home of spirits, and with fearsome respect by the pioneers and travelers of the Oregon Trail, who detoured their wagons around its pitfalls, the area was established as a national wonderland by the Park Service in 1924. As a Wilderness Area it retains its primeval appearance, with no human habitation permitted (other than the Park Headquarters at the Visitors Center). No food or fuel is sold in the park, no fires are permitted. The visitor who wanders on foot over the "frozen" rivers of lava may well feel as alienated from his native soil as a human being might feel on the landscape of the moon.

2. **The snow cover.** An average of at least six inches of new snow had fallen over most of the search area since the airplane had gone down. Even if the occupants of the aircraft had been able to set up markers, these would have soon been covered up by the snow. There were virtually no trees in the area of the "craters" to provide firewood for signalling, let alone warmth. The aircraft it self was the only shelter available, and it would now be invisible from the air unless there were survivors in healthy enough condition to keep it brushed clean. It was not unlikely they would be found without some effort of their own to make their presence seen.

As it happened, the two occupants of N4457D came to the same conclusion on the morning of the fourth day, Monday, January 27. They had huddled inside the cockpit wreckage ever since regaining consciousness, except for a brief excursion to escape the danger of a possible postcrash fire. The pilot, Rice, had regained a partial use of his arms, after suffering a complete paralysis from the impact. In addition to the back injury which brought on continued paralysis and loss of feeling from the waist down, he was suffering from head injuries that had jarred loose most of his teeth (his head struck the control column). His passenger, whom Rice had helped restore to consciousness, also suffered from multiple injuries and was weak from loss of blood. The pair dragged themselves painfully out into the snow and lay on the ground until they concluded that the danger of fire was past. Then they had dragged themselves back into the wrecked fuselage and tried to restore some warmth to their numbed bodies.

Rice kept a winter survival kit in the baggage compartment, consisting of heavy sheepskin lined boots, pants and parka, gloves, chocolate, axe, rifle, knife, matches, etc. The problem for the two crippled men was *donning* the equipment, some of which had been scattered out into the snow when the plane crashed. In their weakened and benumbed condition, even the simplest task, such as unzipping a boot, and getting a foot into it, required Herculean effort—especially so for Rice, with his lifeless limbs. They had to help each other with each detail, tugging and straining with frustratingly clumsy fingers. The process of donning the sheepskins took up all the remaining hours of daylight. When they finally settled down, in semi-darkness, inside the cramped fuselage to conserve body warmth they could sense that the air temperature was already well below freezing and dropping fast.

The two men dozed fitfully through the night. As Saturday dawned they lay awake in the cockpit listening for sounds of a rescue plane. They had not been able to find their portable ELT either in the wrecked baggage compartment or among the debris in the snow-covered ground, but the pilot, Rice, was certain he had stowed it in the aircraft and armed it before departure. All he could do was hope he was right, and assume that the impact had activated the radio. The aircraft radio was dead, so he had no means of checking on the emergency signal. He had a fairly good idea of where they had gone down, and he realized even though they were only 25 or 30 miles from Burley, they could be miles from any road, and even more miles from any human dwelling. Sending his injured companion to seek help could be sending him to his death, given the snow and the cold. There was no brush or timber to build a fire or a marker, even if they had had enough strength to wield an axe. There was nothing they could do but huddle in the battered remains of the cockpit and shiver. And wait. And hope.

Through Saturday and Sunday the hours dragged by slowly without any sign of rescue. The cloud cover persisted and they were unable to sight any aircraft passing over. By Monday morning Rice knew that if they did not seek help now they would soon be too weak to make the effort. He himself was still completely paralyzed from the waist down, so it would have to be up to his companion to make his way out on foot. The two of them managed to wrench the airplane compass free, and Rice drew a map that hopefully would lead to a settlement, perhaps eight or ten miles south of the crash site. Supplied with chocolate bars from the survival kit for sustenance, the passenger set out at 9:30 a.m.

Alone in the airplane, scarcely able to move his body and in considerable pain, the pilot watched the day go by in silence. In his mind he reviewed the events that led up to the accident, considering what decisions or omissions had led to his plight. He knew now that his desire to get home to his family, rather than spend the weekend in a motel 200 miles away, had pressured him into a situation which had some known risks, although at the time they had seemed minimal.

When he had learned that Boise was socked in, he had decided to fly to Pocatello—where he had grown up and had close friends—and wait out the weather. Pocatello had VFR weather when he took off and was such a short hop from Idaho Falls over a familiar highway (about 15 minutes) that it seemed unnecessary to file a flight plan. The surprising news that Pocatello had just closed (due to an inversion of heavy industrial smoke), which he learned when he radioed the tower for landing, changed the whole situation. He could not go back to weathered-in Idaho Falls; what else was open?

Twin Falls, about half way to Boise, seemed the best bet, according to his weather briefing, so he headed west. Again, with less than 45 minutes' flight ahead of him, it seemed more important to concentrate on managing the aircraft and obtaining a favorable altitude, than to take time to file a flight plan. The entire area was heavy with low-lying clouds, and he was not instrument rated. So he had to stay on top. He had flown VFR on top before many times, without incident. He had simply never given much thought as to what he would do if the engine quit when he was flying over a deep layer of clouds, and unable to radio for help.

The first indication of trouble—loss of power and a rough running engine—had come only minutes after his last transmission to Burley FSS. At this point he was level at 6,500 with the cloud layer approximately 1,000 feet below. He thought: *Induction ice?* He tried carburetor heat, but saw no improvement. He knew that he had at least 50 gallons of fuel remaining and he tried switching tanks, but without effect: the engine sputtered and died. He knew that there were several emergency strips in his vicinity and he started to thumb through his copy of the state aviation handbook to check on their location. But by this time he was already penetrating the clouds and he had to concentrate on controlling the aircraft. He put in a call on the radio to Burley FSS but received no acknowledgement. He remembered the problem he had experienced communicating with Idaho Falls Tower earlier.

Breaking out of the clouds only a few hundred feet above the surface, Rice found himself over a harsh, uneven landscape which he recognized as part of the Craters of the Moon Wilderness Area. The only possible landing site he could see was a "blow-hole," a large crater-like formation of lava which appeared perhaps just broad enough to serve for a short field landing. He came in wheels up and nose high to kill his airspeed and pancaked the *Bonanza* down into the lava basin. The loose cover of snow allowed the airplane to shoot ahead into the crater before piling hard into a basalt ledge. He could still remember the force of the impact.

He knew that neither he nor his companion would be alive now if it had not been for the winter survival gear he kept on board during the winter months. Ironically, he realized, one condition the kit did not provide for was an immobile survivor. If only he had included some flares—anything to attract attention.

And losing the ELT in the snow bothered him. For some reason it must have failed to activate—*had it been smashed against a rock?* If he had it to do over, he thought, he would have packed a spare CB radio in his blankets, where it would have a good chance of not being damaged on impact. The idea of freezing to death within a few miles of a town, for lack of the simplest type of functioning radio, seemed preposterous. And yet, if his passenger did not come back with help by nightfall he knew his chances of surviving another sub-zero night alone were slim. The cold seemed more intense than ever. He began burning pieces of torn-up charts for the little warmth they yielded.

At approximately 2:00 p.m. on Monday, January 27, a ranch hand was just finishing dumping out a load of feed for a herd of cattle on the range north of the village of Minidoka, on Idaho's Snake River Plain. The feeding station was near the border of the Craters of the Moon Wilderness Area. As he was about to climb in his truck and drive off, the worker happened to catch sight of something—no, someone—moving in his direction, stumbling and almost falling down and gesticulating frantically. He got in the truck and drove down the fence line to investigate.

At 2:53 p.m. Donald Slonecker, an air traffic specialist in the Burley FSS, received a telephone call from a man who stated that he was a passenger in the *Bonanza* which had crashed on Friday en route to Boise. He said that he had been walking for about ten miles in a southwesterly direction before he found help. The pilot was still in the airplane, crippled, but alive that morning.

From the information given by the passenger the location of the downed plane was plotted as being within five or six miles north of Minidoka. This information was relayed to search and rescue teams via the Idaho Division of Aeronautics, which dispatched an ambulance to pick up the passenger and a rescue aircraft from Mountain Home Air Force Base to search for the pilot.

The crippled pilot, Roy Rice, was watching the light beginning to fade for the fourth time since his forced landing on Craters of the Moon National Park, when he caught the sound of an aircraft engine. Moments later he saw the aircraft, a light twin, flash past overhead at an altitude of about 3,000 feet. The aircraft was flying repeated "S" patterns and appeared to be searching the terrain. The stranded airman's feeling of relief turned to fear and near-panic as the search plane moved off in the distance without, as far as Rice could discern, giving any indication that the downed plane had been spotted. (The Bonanza was heavily dusted with snow, and the large cross which Rice and his companion had painfully fashioned near the wing early that morning had also been obscured by snow.)

With great effort Rice dragged himself out of the fuselage, braced himself up on one arm and waved feebly with the other. He could see no response. The twin disappeared into the clouded horizon, leaving Rice in doubt and despair. It seemed like an eternity until the slow, heavy rotor beat of the National Guard helicopter told him that rescue was at hand. Roy Rice was flown to a hospital in time to save his life, and eventually he recoved the use of his legs. He is still in the process of recovering his health. One day he hopes to regain his pilot's certificate, and fly again.

If he does, there is one thing you can be sure he will not leave home without: the best emergency radio he can buy. Maybe two.

Radio Response

"EIGHT ZERO November, traffic is two o'clock, four miles, southwest bound, altitude unknown."

"Roger!"

If a conversation consists of a statement and a response, the above lines would seem to qualify. But does it?

To the trained ear, listening to this very common exchange between controller and pilot, it is obvious that the reply, "Roger!" leaves many questions unanswered, raises others and solves none at all—except to indicate that *some* pilot has heard the controller's transmission. But was it the pilot of "EIGHT ZERO November?" Did the pilot actually see that other traffic? Was he *looking* but had not yet spotted the second airplane? Was he assuming that radar would continue to look after him? *What exactly did he mean when he said, "Roger!"?*

This type of "sloppy" communicating creates uncertainty in air traffic and problems for controllers. They must either call the pilot back for clarification of that ambiguous "Roger!" or if the frequency happens to be busy, leave the potential traffic conflict unresolved and to chance.

This is one example of how improper radio techniques can create confusion and derogate safety, to say nothing of damaging the image of general aviation pilots as professionals. As some pilots become more comfortable in the environment of air traffic control they seem to become less formal in their communications. They are not deliberately trying to lower safety standards; they just feel like loosening up a bit. *What harm, after all, is there in replacing standard phraseology with casual words, occasional slang, or even "CB" talk?*

A great deal of harm, maybe. Standard communications procedures were established to assure clarity of communication; deviation from those standards can lead to assumptions, misunderstandings, and even midair collisions.

A course in avaition radio communications would include the following subjects:

• **Watching your language.** The standard words and phrases were chosen to minimize the chance of misunderstanding on the radio. (Why else would intelligent adults say "niner" for "nine" except to keep it from being confused with "five"?) A quick review of the Pilot/Controller glossary in Airman's Information Manual's ATC Procedures—formerly AIM Part I—will refresh your memory if you are rusty on the nomenclature. Learn it and use it. It is the same glossary the controllers use, so you will be talking a common language.

• **Minding your manners.** It is not only common courtesy to listen on the frequency before you push the mike button to talk, it is also the quickest way to get your message in. Someone else may be in the middle of a transmission. If you interrupt another transmission, which may then be repeated from the beginning, you are going to be waiting that much longer for your turn. Also, think what you want to say before you start to talk—on the air is no place to "uh" and "ah" while you formulate your message. If the frequency is extremely busy and you are lengthy or hesitant, you may be holding up other communications of a critical nature.

• **Who, where, what?** Be as brief as possible, within the bounds of clarity. On initial callup, for example, whether on the airport or in the air, the controller wants to know first of all (1) who you are, (2) where you are, and (3) what you want to do. If you tell him that right off the bat (Example: "Ground, Cessna ONE TWO THREE FOUR Xray, at the City Ramp, ready for taxi") he'll be able to issue your taxi clearance without further ado. On the other hand, if you start by simply calling, "Martinsburg Ground Control, this is Cessna ONE TWO THREE FOUR Xray," another call will be necessary on the part of both parties before any real communication can begin. Note: be sure to indicate initially if you have the current ATIS, where this exists.

• **Handling the unexpected.** If you fly enough, sooner or later you will have some kind of radio failure: your transmitter or your receiver will become unusable—maybe both. How you handle it will depend to a great extent on the circumstances. If you have a transponder, there is a prescribed

procedure: Squawk 7700 for one minute then switch to 7600 for the next 15 minutes, and repeat for as long as necessary. Meantime, monitor your receiver, if it still works, on the most logical frequency. (If you've been talking to someone, stick to that channel; if you have not and are nearing your destination, listen to approach control or the tower.) Air Traffic Control will expect you to do the most logical thing.

If your receiver has failed you will need to make your decisions according to conditions. If you are IFR, there is a whole chapter in AIM on the subject; if VFR, you might want to divert to a non-controlled airport. If you cannot hear the tower, try listening to the nearest VOR voice transmission. If you lose your radios after having made your initial contact with a facility, watch the tower for a light signal for landing.

Emergency situations, however, are all different and often no generalized rules will help. Try to do the most logical, and SAFEST thing.

• **Roger Who?** "Roger" alone means nothing to the controller, except that somebody has heard his message. If he has just given you traffic in your area, tell him that you have the traffic in sight, or that you are looking—and where ("THREE FOUR Tango, Roger, looking for a *Bonanza* at three o'clock two miles.") Repeating his words may seem childish, but it does avoid error.

• **Confess your ignorance.** If you see traffic in the expected quarter, but have no idea what a *Bonanza* looks like, as compared with a Fokker *Triplane*, tell the man *what you do see*— ". . . a single engine aircraft with a vee tail." There could be traffic around which is not painting on the controller's radar; vanity can be dangerous in a situation like this.

If you lose traffic that you have been following or monitoring, tell the controller about it promptly. Never *assume* the airplane has landed or moved out of the picture. It may be positioned into a mutual blind spot. Finally, if you are new at high density traffic and begin to feel the pressure with so many airplanes around you, ask the controller to help you. More often than not he will lead you by the hand until you can pull yourself together. No one will slap a yellow stain on your shirttail.

• **Identify, Identify, Identify.** Get into the habit of beginning each transmission or response with your call numbers—all of them, if there are aircraft in the vicinity with similar numbers. Confirm the controller's instructions by telling him *who is doing what*—"SEVEN TWO THREE Zulu is turning left for heading ZERO FIVE ZERO." Controllers are human and occasionally—rarely—make mistakes too. Repeating their instructions with your identity makes that possibility remote.

• **Get it all up front.** Normally you can save time by giving your intentions and/or request in your initial callup. Example: *"Baltimore Approach, Cessna ONE TWO THREE FOUR Xray over Bay Bridge westbound, transiting your area at 3,000 feet, request traffic advisories."* Obviously if your message is long and complicated, you will first want to make sure that someone is listening before you pour it out. But many seemingly long messages can be quite brief once the unnecessary fat is trimmed away. For example, consider: *"Richmond Approach Control, this is Piper SIX THREE TWO Tango, we are presently about 12 or 13 miles east and a little south of the airport at an altitude of four thousand five hundred and fifty feet and we'd like to land at Richmond and we'd like the weather at the field. We're making 100 knots."*

This can be trimmed down to: *"Richmond Approach, Piper SIX THREE TWO Tango, 12 miles east, at four thousand five hundred, landing Richmond, have ATIS Charlie."*

Words like "this is," and "about," and "we'd like to" are usually unnecessary in a busy environment. Also the controller knows that mileages for an inbound airplane are normally *to* the airport, and are approximate unless preceded by DME. He does not need to know your air speed (which he can usually estimate from the type of aircraft) unless he asks for it. Giving you the weather at the airport is standard procedure—wherever it has not already been provided to you on ATIS.

• **On the ground.** At a large and busy airport you can simplify taxiing instructions by telling ground control where you are with some precision—not just "on the ramp." That ramp could include several hundred acres. "Near the Page hangar," or "at the helicopter pad," tells the ground controllers where to look. This is especially helpful if you happen to have the new small numbers, which might not be easily readable from the tower, even with binoculars.

• **Honesty is the only policy.** Never hedge on your location or altitude when giving a position report. Saying an aircraft is "over the river" when it is still five miles farther out, in an attempt to get an earlier sequence for landing is not as common a practice as it was before the days of extensive radar coverage, but it is still done occasionally and it is still dangerous. Also dangerous is saying you are at 3,000 feet when queried by a controller, rather than admit your altitude has somehow slipped to 2,600 while you were not paying attention. At a non-radar location, or with non-transponder aircraft, air traffic control has to depend on your word for such things, and anything but honesty could result in shaving your separation from another airplane precariously.

• **Approach via Approach.** When inbound to an airport that has an approach control, it is advisable to contact them before the tower. (At TCA's this is mandatory; at other airports, including those with Stage III radar service is optional.) In all cases it serves to provide a more orderly flow of traffic in to the terminal area. Before you call approach, listen to ATIS if there is one and tell them when you call that you have "information Charlie" or whatever. If there is no ATIS, monitoring approach control briefly before calling in will give you the same information, and you can advise that you "have the numbers" when you call. This will save everybody time and toil.

• **Speak softly, but carry a good mike.** Few non-professional pilots seem to realize that you can speak quietly into any good aircraft microphone, if you hold it properly, quite close to the mouth. A quality mike is a must—no degree of elocution can overcome poor amplification. Airplane owners who spend bundles of money for radios but stick with a second-rate, twenty-year old Mickey Mouse microphone are penny wise and pound poor. They do not know how *bad* they sound. If you have never heard yourself on the radio, it is a good idea to get someone to tape you in action. You may never come to sound like Gregory Peck or Charleton Heston in the cockpit of a 747, but you may get a lot fewer requests to "Say again, please." ■

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GENERAL AVIATION NEWS

INDEX TO ARTICLES

1976-1978

For the convenience of our readers, we are providing an index of feature articles published in this magazine from January 1976 to December 1978.

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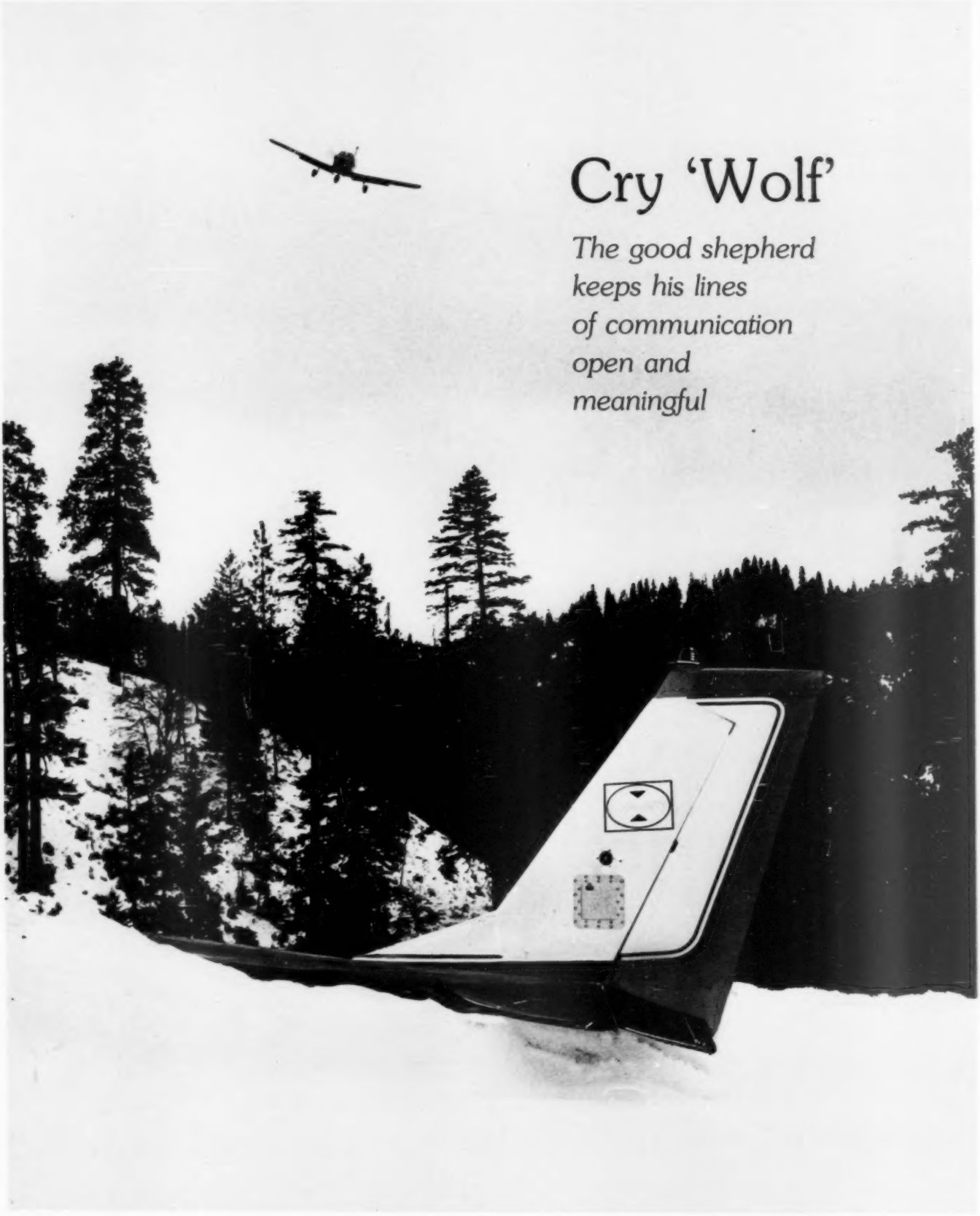


Cry 'Wolf'

The good shepherd keeps his lines of communication open and meaningful

The fable of the shepherd boy who cried his "Wolf!" warning too often without cause, until his cries came to be disregarded, has its modern counterpart in warning signals of the Emergency Locator Transmitter, which has been required equipment for most U.S. registered aircraft since 1973. The distinctive whine of the ELT is recorded on the average of about 18 times a day or about 6,500 times a year by the Air Force Rescue Coordination Center at Scott Air Force Base, Ill. (hub of search and rescue efforts within the continental United States)—and just about 98% of the calls are not for real. Designed to become activated (when previously "armed") by impact during an aircraft crash, the ELT is sensitive enough to be turned on very easily when jarred or dropped or mishandled carelessly in any way.

The Rescue Center responds to *all* reported ELT signals, since normally there is no means of distinguishing between an emergency signal and an unintentional activation. Because of the high percentage of inadvertent or "Wolf!" signals, there have been some unfortunate local instances where tragic loss of life occurred because the signal was disregarded and not relayed promptly to rescue authorities, on the assumption that no emergency existed. In one case on record in the Washington, D.C., area, so many ELT false alarms had been heard that when an alarm sounded late on a snowy Sunday night, no one took it seriously. Next morning the airplane wreckage was found within a few miles of the airport; both the pilot and his young daughter, who had been returning from a ski trip, had died after the occurence of what investigators called a "survivable accident."

Also unfortunate is the attitude of many pilots and aircraft owners who feel that the ELT is simply not sufficiently reliable and who disregard the regulations requiring its presence on board the aircraft in flight. Of the 4,350 aircraft involved, in general aviation accidents in 1977, only about 3,000 were known to have an ELT on board (in 448 cases this information was not learned —either the aircraft was never recovered, or too severely damaged, or evidence regarding the ELT's presence was contradictory.)

The failure of many ELTs to activate on impact following an accident has also contributed to lack of pilot confidence in the instrument. With regard to the approximately 3,000 accidents in 1977 where the aircraft did have an ELT on board, roughly one-fourth of the ELTs failed to activate or produce a strong enough signal to contribute to rescue. These failures are due in part to human error, and in part to mechanical failure.

Despite the known imperfections in the present state of the art of ELT construction, it is still a type of life-saver which no concerned pilot would be without. An average of about 100 downed aircraft per year are located by means of the ELT signal, which is credited with saving approximately 1,000 lives in the five years since it became required equipment on general aviation aircraft. A new generation of ELTs is in process of being developed which will give better results than the present equipment, but until the new instruments appear there is much that airmen can do to insure the serviceability of current ELTs and to prevent inadvertent activation.

The latter problem is much more than a costly nuisance and a means of turning people off to genuine distress calls; the aircraft used in search and rescue are limited in number, and if they are deployed in a time-consuming search for a mishandled instrument, they may not be available in time to save the lives of crash victims.

Tracking down a false-alarm can be an extremely frustrating experience, particularly when the source is portable and not in an aircraft. You would think that a sensitive instrument of this kind would be handled with great care, that batteries would be removed and the switch carefully placed on "off" whenever it is stored or shipped. But Rescue Center records abound in cases where an armed and powered ELT has been handled less gently than a doorstop. In fact in one instance in Ohio the investigation of an emergency signal led to a boxed and "live" ELT that was indeed being used as a doorstop.

More frequently the warning signals are traced to the trunk of a car, the back of a shelf, the bottom of a well, to an attic crate, to the baggage compartment of a train, etc. The latter cases can be particularly hard to crack because the trains may be moving through various states at the time—or even across international boundaries. Another particularly exasperating search led finally to the coffin in which a pilot had been buried. There was some difference of opinion as to whether the transmitter had been set off by being dropped into the coffin accidentally or whether the interred airman had been attempting to contact someone above ground.

ELTs have also been put to uses for which they have never been intended, by persons who appeared to have little understanding of the possible consequences. One western rancher who had a radio with very high frequency reception in his home carried an ELT around with him on his jeep and turned it on just before he started back home for dinner each night, so that his wife would have everything ready on the table at his arrival. One evening he found the sheriff's deputy waiting for him.

As a transmitting radio the ELT and its appropriate use or misuse is the province of the Federal Communications Commission, which alone has authority to seize the equipment when it is transmitting a misleading signal, or to take whatever action may be necessary to silence it, in the absence of an owner. Since most of the persons who become involved in the search for an inadvertent signal are not FCC technicians, deactivating the instrument is not always a simple matter. The obvious solution—re-

Setting out on a cross-country flight without first checking on the operational status of your ELT is an invitation to needless danger and suffering. With a cabin installation like that shown here it is a simple matter for the pilot to test the instrument on his own radio.

turning the switch to the "off" position—is not always possible. The ELT may be in a locked aircraft or building, with no keyholder reachable. Or, the instrument's mechanism may have gone out of order, possibly through corrosion of the batteries, so that it does not respond to turning the switch.

However, there are some emergency measures which can be used to at least muffle the signal. If the antenna has been extended, reducing it to minimum length will weaken the signal. Wrapping the antenna in aluminum foil, or grounding it, will have a similar effect. Not recommended is the blunt method of a Texas sheriff who, when all peaceful efforts failed to silence an ELT that had been abandoned on a beach, drew his trusty Colt .45 and shot it dead.

Some ELT's especially those located in the tail, are prone to activation from a hard landing on the airport, or a bumpy rollout. The pilot may lock up his aircraft and perhaps remove his ELT and drive away without noticing that it is transmitting. The habit of switching the aircraft radio to the emergency channel, 121.5, before shutting off communications, is a simple means of avoiding personal embarrassment and sparing the cost of what could be a massive search and rescue effort.

Preventing unintentional signals is only part of the pilot's responsibility. Inasmuch as the ELT is part of the required equipment on his aircraft, it is up to him to keep it maintained properly. A non-functioning ELT can be more dangerous than a non-existing one if, in the event of an accident, the survivors stake their lives on its signal. In addition to maintaining fresh batteries in the ELT case the pilot can also take the precaution of activating his ELT in accordance with regulations (only within the first five minutes of the hour) and checking for the signal with his aircraft radio. Once his aircraft goes down and he loses his radio, he may have no means whatsoever of knowing whether the ELT is transmitting.

Incidentally, the lateral range of the ELT depends upon line of sight transmission, and may be very limited if a crash occurs in a narrow canyon. If able, the pilot can help contact rescuers by removing the ELT from the airplane, extending its telescopic antenna if it has one, and carrying it up to a knoll or peak. This would be especially important when the external fixed antenna has been broken off during impact. (A surprising number of pilots have no idea which is their ELT antenna, or even where the ELT is located in the airplane.) Pilot surveillance of the ELT, when positioned inside the tail cone, can be made much easier if an appropriately rated mechanic provides an access plate.

Briefing his passengers about the presence of an ELT on board, and its function, is another pilot responsibility which can save lives in general aviation. Otherwise, if an accident does occur and the pilot is rendered unconscious, surviving passengers may panic and set out on foot to seek help in spite of unfavorable terrain and weather. Where a portable ELT is in use, passengers should be shown how to remove it and extend the antenna, and told about placing it in an unobstructed area for best transmission range.

The ELT of the future will be largely free of the many "bugs" that plague the present generation of emergency transmitters. Eventually we will have an automated search and rescue system involving space satellites with highly sophisticated direction finding capacity. In the meantime every pilot can contribute to the effectiveness of the present equipment by making certain his ELT is in a safe place and is not lending its voice to the daily clamor of non-emergency "Wolf!" calls for help. No one can predict when his turn may come to need help, but when it does the need may be urgent—as it was a year ago when a Cessna 182 went down in the Laguna Mountains east of San Diego, Calif.

The flight was intended as a special Christmas present to a ten year old girl from her grandparents, who were flying the airplane.

Originating in Colorado two days after Christmas, the pilot experienced deteriorating weather in the southwest and laid over in Prescott, Ariz., for several hours awaiting improvement. The airplane took off from Prescott under a low ceiling and when it failed to arrive in San Diego on schedule a search and rescue effort was organized. IFR weather hampered search aircraft severely, and no sign of the missing plane was found that day, as the frantic parents waited in San Diego for news that did not arrive. Eventually a weak ELT signal was picked up near the Julian VOR, about 40 miles northeast of San Diego.

The San Diego County sheriff launched a helicopter beneath low ceilings while a ground team with hand-held DF equipment began a search through the rugged terrain. When finally the weather lifted sufficiently, the sheriff's helicopter managed to slip under the low clouds to a valley where the aircraft wreckage was located. They found the ten-year old girl, alive with only minor injuries, but nearly frightened to death: her grandparents had perished in the crash. The child was soon reunited with her parents, who could thank the ELT for the best New Year's present they had ever received. As for the search and rescue personnel, who had spent many hours of what had been planned as Christmas holiday time searching through the mountains, this was the "one case in fifty" that makes the wasted hours of responding to "Wolf!" cries tolerable. ■

Down Time to Rescue

Table shows the average time required to locate a missing aircraft in 1977 after the Rescue Coordination Center had been notified. Note the relationship between the time required by FAA to establish that an aircraft was missing and alert the Center, and the length of the search effort.

	Notification time:	Location time:
Aircraft on IFR flight plans	32 minutes	4 hours
Aircraft on VFR flight plans	5½ hours	38 hours
VFR aircraft without flight plans	35 hours	3¼ days

Survival Aspects:

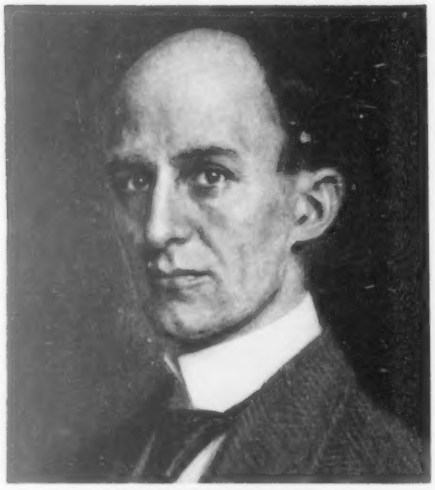
Survivors of flight plan (IFR or VFR) aircraft	41.1%
Survivors of non-flight plan aircraft	22.5%

ORVILLE WRIGHT

Famous
FLYERS

The Wright Brothers' One and Only

Kitty Hawk



WILBUR WRIGHT

It was born in a wooden shack on a deserted Carolina beach. Its active lifespan was less than two minutes, following which it was reduced to 605 lbs. of useless junk—twisted wires, torn fabric, splintered wood and rusty metal. The remains were interred in crates which gathered dust in a Dayton, Ohio, bicycle shop for 13 years—until May of 1913, when the Massachusetts Institute of Technology decided to give official recognition to the new area of aeronautics by displaying, in their newly constructed main building in Cambridge, Mass., the original *Wright Flyer*.

This first *Flyer* (all the Wright brothers' aircraft were called *Wright Flyers,* but the first one was also called the *Kitty Hawk,* after its windswept birthplace) was rebuilt and restored as faithfully as possible, and sent on an exhibition tour of the nation that lasted almost a dozen years, and finally given a permanent niche of honor in the British Museum of Science. Serious efforts to return this historic wonder to its native land did not get under way until after World War II, when regular air transportation had become a dominant aspect of modern life, and already travel to the moon had become a realistic possibility.

The *Kitty Hawk* was conceived in December of 1902, after the Wright brothers returned to their home in Dayton following three years of successful glider experimentation at Kill Devil Hills, a deserted strip of beach off the coast of North Carolina. They had not only established height, distance and endurance records for gliders, but they had also penetrated deeper into the mysteries of flight than any man before them. Their new powered *Flyer* was to incorporate the following innovations:

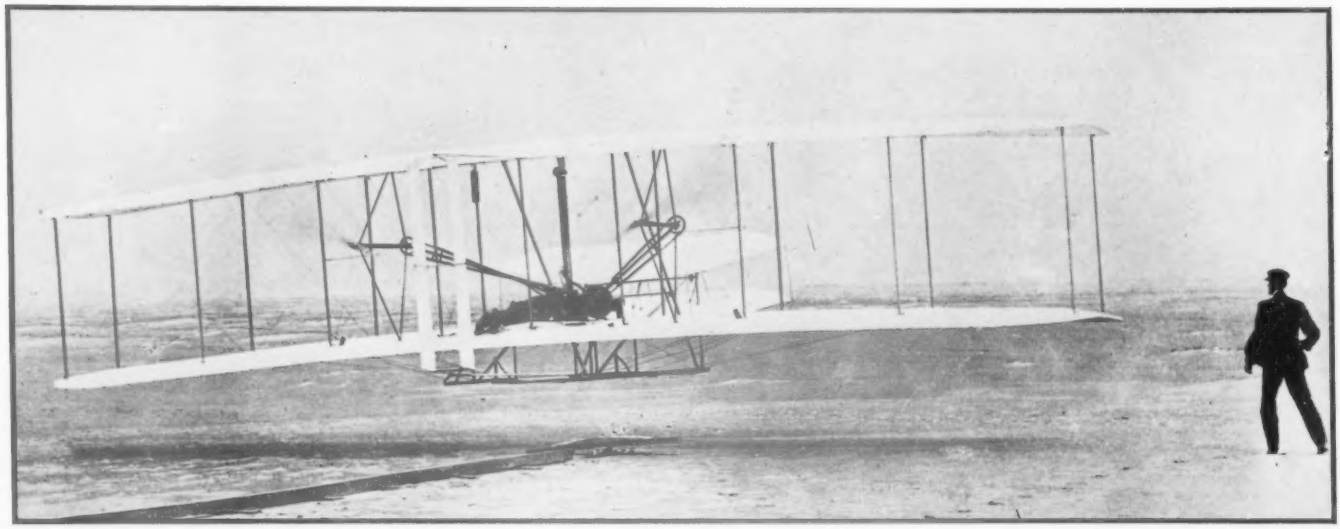
Forward elevators. Cambered, movable elevators mounted on a boom six feet in front of the wings would provide unprecedented vertical stability and control.

Controllable wing angle. The wings would be "warped" by the pilot in flight to give an aileron-like effect, for lateral stability and control.

Vertical fin. To counteract wing drag from warping.

Movable rudder. To prevent spins (or "well-digging," as they called it).

The chief stumbling block to flight, Orville and Wilbur determined, was the *unreliability* of existing aerodynamic data and theory—their own theories, buttressed by

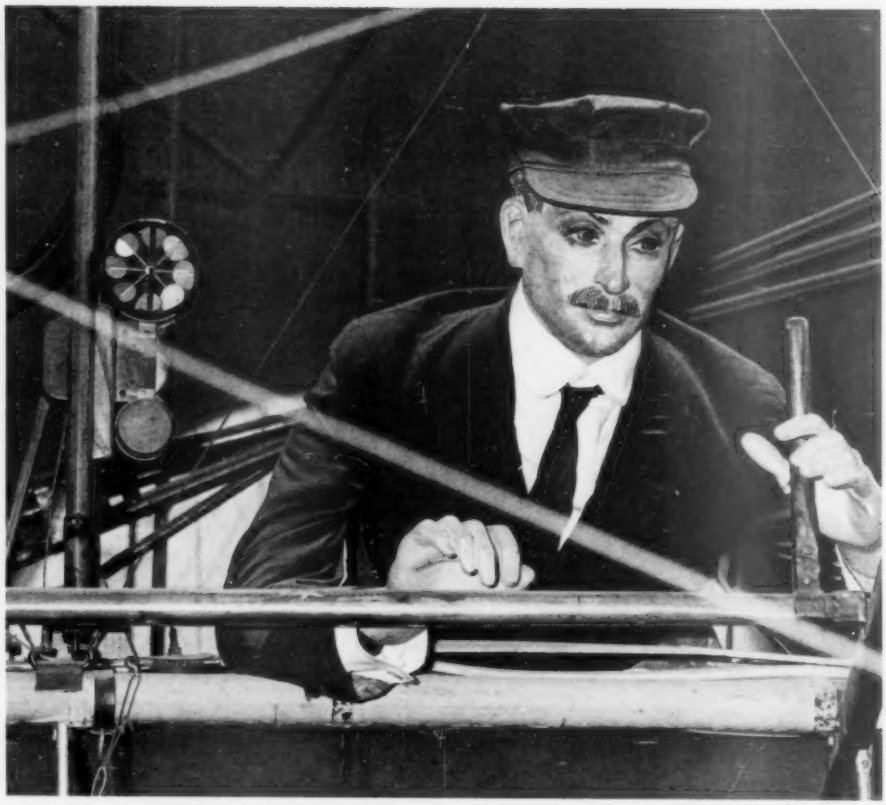


With Orville at the controls and Wilbur steadying the wing, the first powered aircraft lifted off the sands of Kitty Hawk on December 14, 1903. Airspeed inflight was about 30 mph., against a stiff Carolina breeze almost that strong.

patient laboratory analysis, completely reversed those of many predecessors, and resulted in major changes to the airframe. Their *Kitty Hawk* aircraft wing was proportionally longer than earlier glider wings (just over 40′) with a shorter camber and numerous other changes. Leaving nothing to chance, the two brothers developed their own theories and data on propeller performance. Their ability to arrive at a correct understanding of extremely complicated physical phenomena, such as the movement of propeller blades, by study and by matching wits against each other was sheer genius.

The immediate problem was obtaining a light, efficient engine, ". . . weighing no more than 180 lbs . . ." and developing about 12 horsepower. When no engine manufacturer could meet their specifications, they designed and built their own engine—a labor that required many months and proceded with numerous setbacks. Their father, Bishop Milton Wright, noted in his diary for February 13, 1903: "The boys broke their little gas motor in the afternoon . . . dripping gasoline froze the engine's bearings."

Nevertheless the "boys" (Orville was 31 and Wilbur 35 at this date) persevered, using aluminum in the block for lighter weight, and trimming off ounces whenever they could, and by June of 1903 they were able to report on output of 15.6 brake horsepower from a 200 lb. engine. Their engine was water-cooled, with four cylinders in line, 4″ bore and 4″ stroke, cast aluminum block. The engine would be fastened on top of the lower wing, alongside the "cradle" from which the prone pilot operated the aircraft. Power was transmitted by chains to two 8′ pusher-type propellers.



"This is your captain speaking." Orville Wright, first pilot ever in a position to make that statement, is immortalized by wax figure in the original plane, now in the Smithsonian. Below—an ill wind put an end to the career of the Kitty Hawk on the day of its triumph.

On September 25, 1903, the Wright brothers arrived at their camp in Kill Devil Hills, and began to assemble their first powered aircraft, using their 1902 glider as an airframe. At times, when favorable weather tempted them, the two brothers would down tools and go out gliding. But the widespread publicity about Professor Samuel Pierpont Langley, who was said to be on the verge of making an airplane flight in Washington, D.C., spurred them on with their work.

On December 14, 1903, a year after its conception, *Kitty Hawk* was launched from a slope of Kill Devil Hills. The aircraft stalled quickly and Wilbur, who had the honor of making the first attempt, was lucky to be able to land on the plain without serious damage or injury.

Three days later it was a different story. With Orville and Wilbur taking turns as pilots, the *Kitty Hawk* made four successive flights; the first three endured only a few seconds, but the fourth flight lasted for 59 seconds and covered 852 feet from a level takeoff. Man was in the air!

But no one rushed to catch a glimpse of the *Kitty Hawk*, which had been caught by a gust of wind on the last flight and was too badly broken up to be repaired. No crowds greeted the Wrights when they returned home to Dayton for Christmas, and no offers of wealth or honor poured in. The public and the press was surfeited with accounts of airborne wonders (Langley's plane had plunged into the Potomac directly after being launched from a houseboat), and credence was to come slowly, albeit surely, for the Wrights. Although Professor Langley, as head of the Smithsonian Institution, gave full credit to the Wrights for having made the first flight, after Langley's death in 1906 his successors tended to extoll *his* efforts and play down the accomplishments of the *Wright Flyers* (five more *Flyers* were built over the next five years). This is why the Wrights declined to exhibit the *Kitty Hawk* in their museum. Consequently when the British Museum of Science expressed a desire to enshrine the *Hawk* in a new wing which they opened in 1925, Orville (Wilbur had died in 1912) had no hesitation about dusting off the shipping crates and sending the airplane on what appeared to be its last journey.

Over the next 20 years an estimated ten million persons viewed the *Kitty Hawk* at its place of honor in the British Museum. During World War II it was carefully sheltered from bombings (in a subway).

Shortly before his death, on January 30,

1948, Orville underwent a change of heart and wrote to the head of the British Museum of Science, suggesting that the time might be at hand when the plane should be returned to the United States. His wishes were respected, and after an exact scale model of the aircraft had been built in England, "so that future generations of Britons may still see a likeness of this most remarkable example of the audacity of man. . ." the return of the *Kitty Hawk* was arranged.

The arrangements took on the overtunes of an international visit, as elaborate precautions were taken to prevent theft or damage to the aircraft, now an historical artifact of inestimable value. Air transport was ruled out, ironically, as being too risky. The 605 lbs. relic was crafted and loaded on board the 31,000 ton *S.S. Mauretania*, accompanied by the Museum Director and staff, in November of 1948. Originally bound for New York and a massive ticker-tape welcome, the *Mauretania* changed course, after news of an impending east coast dock strike, and docked at Halifax, Nova Scotia on November 11.

With solemn ceremony the precious crates were transferred to the U.S. Navy aircraft carrier *Palau* for shipment to Bayonne, N.J., where they were loaded into an armored Navy trailer truck for the final lap of the *Kitty Hawk's* return to the Nation's Capital.

On November 22, a gray, cold day not unlike that day at Kill Devil Hills 45 years before, when two determined young men turned an age-old dream into reality, the original *Wright Flyer* was uncrated and restored to life in Washington, D.C. Currently the showpiece of the new Air and Space Museum, it is the first sight to catch the eyes of the vast crowds who frequent this museum. The little airplane may not have the exciting appeal of the huge rockets and spaceships and lunar travelers standing nearby, but in terms of pure audacity it probably outweighs the walk on the moon.

The *Hawk* is back. ■

MEMORIAL TO THE KITTY HAWK FLYER

"The world's first power-driven, heavier-than-air machine in which man made free, controlled, and sustained flight.

"Invented and built by Wilbur and Orville Wright. Flown by them at Kitty Hawk, North Carolina, on December 17, 1903.

"By original scientific research the Wright brothers discovered the principles of human flight. As inventors, builders and flyers they further developed the aeroplane, taught man to fly, and opened the era of aviation."

BRIEFS

INSPECTION REMINDER. The little two-inch square FAA sticker that is designed for aircraft owners to remind them when their next inspection is due, has been revised so it can be be used for a variety of reminder functions. The new sticker—FAA Form 8600-1—has a blank for the appropriate FAR Section, as well as for hours in service or date when the next inspection is due, whereas the previous sticker had a blank only for the due date. The form and its use is described in greater detail in "Inspection Reminder—FAA Form 8600-1" (AC 91-11B). Copies of this advisory circular are free from DOT/FAA Distribution Unit, M-443.1, Washington, D.C. 20590.

BLOWING SNOW is bad news in the aviation world—most of the time. One exception is when snow-blowing is being used as a method for clearing a runway in the shortest possible time. To assist airport operators in choosing the best airport snowblowers for their individual needs, FAA has published a 40-page book on snowblower specifications. Included are descriptions of the various sized vehicles, from small blowers capable of casting 600 or less tons of snow per hour some 50 feet, to large blowers which can propel 1,700 to 2,500 tons per hour up to 100 feet. "Airport Snowblower Specification Guide" (AC 150/5220-11) is free from DOT/FAA Distribution Unit, M-443.1, Washington, D.C. 20591.

SPECIAL N-NUMBERS. In response to strong public dissent FAA has withdrawn a proposal that would have discontinued issuance of special identification numbers for aircraft. After evaluating 464 public comments —all but seven of them opposed to the proposal—the agency concluded that such numbers constitute a small but important contribution to the promotion of civil aviation. However, some cost-saving changes will be made in the procedures for issuing special numbers. For example, telephone requests to determine the availability of specific numbers no longer will be accepted, and consideration will be given to increasing the present $10 fee for special numbers if it seems necessary.

THE WRONG NUMBER can be a very serious matter when it comes to aircraft engine cylinder numbering. The latest Lycoming "Flyer" notes that there is occasional confusion in some repair shops stemming from the fact that not all manufacturers number their cylinder positions in the same way, i.e., starting with the cylinder nearest the power delivery point. Mechanics should all be aware of this, because magneto/engine timing is done by reference to a specific number cylinder and timing will be off if the wrong cylinder is used for this purpose. Also, when reassembling cylinders on an engine, a specific torqueing sequence should be used. If there is a doubt as to cylinder numbers the information is available from engine handbooks, or by writing the engine manufacturer.

AIR TRAFFIC SERVICE advises that the 21st edition of the San Francisco sectional chart dated November 2, 1978, shows a "diamond" mountain pass route for VFR flight between Fresno and Independence, Cal., the so-called Kearsarge Pass.

This route was unintentionally indicated and should be disregarded because of the extremely high and hazardous terrain and the difficulty of staying on course. (See August issue Of FAA GENERAL AVIATION NEWS for an account of these difficulties.)

A "corrected 21st" edition of the San Francisco chart has been published. Purchasers of the incorrect chart may exchange it for the correct "21st" without charge.

New Instrument Test Guides for Airplanes, Helicopters

The latest "Instrument Rating Written Test Guide," recently published by FAA, replaces two earlier test guides, those for instrument ratings are given the same book and for Instrument Rating—Helicopter (AC 61-45).

The new guide is designed to be used in preparation for the current "question book" written test, in which all candidates for Instrument Rating—Airplane (AC 61-8C) of questions, but each receives a different list of questions to answer from among those in the book.

The more than 1,000 multiple choice questions in the new test guide are approximately the same as those in the question book that is used in the actual test. Both question books contain supplementary material needed to answer the test questions.

Copies of "Instrument Rating Written Test Guide" (AC 61-8D) are available for $3.75 from Superintendent of Documents, GPO, Washington, D.C. 20402.

Toluene in Aviation Fuel

A directed safety investigation (DSI) by FAA has determined that there is no safety hazard associated with the use of the chemical toluene in aviation gasoline. The investigation was initiated because of reports that high concentrations of hydrocarbon chemicals, including toluene, in aircraft fuel could soften or dissolve plastic components in the fuel systems and perhaps interrupt the flow of fuel to the engine. The chemical is being used by some oil companies as a substitute for tetraethyl lead to maintain octane ratings in grade 100 low lead gasoline.

Although the DSI determined that toluene creates no safety problem, it did identify a number of service difficulties, such as swelling of seals used in fuel system components. However, the report concluded, these problems are well known and normally handled in routine maintenance.

Wind Shear Warning Service

After a successful year-long test at seven airports, the low level wind shear alert system will be expanded to include seven additional airports early in 1979.

The equipment triggers visual and aural alarms in the tower when significant differences are detected in wind speed and direction from one point on the airport to another. This allows the controller to warn pilots of potential wind shear conditions which can be particularly hazardous during takeoff and landing when an aircraft may not have enough speed or altitude to recover from sudden and dramatic wind shifts. (Changes in wind direction and speed as much as 180 degrees and 50 knots have been observed within 200 feet of the ground.)

Locations slated to receive the wind shear alert next year are: Miami, St. Louis, Washington National, Pittsburgh, New Orleans, Dallas-Ft. Worth, Orlando, N.Y. La Guardia, Memphis, Ft. Lauderdale, Kansas City, Detroit Metropolitan, Minneapolis, Cleveland, Philadelphia, Indianapolis, and Newark. The systems are already in use at Tampa, Atlanta, Oklahoma City, Houston, Denver, Boston, and N.Y. JFK Airport.

Instrument Approach Plates Issued in Bound Volumes

Instrument pilots who have complained about the time spent in keeping their instrument approach plate books up to date can take heart: as of November 30 the National Ocean Survey (NOS) which issues the plates, began using a new system of bound volumes, eliminating the need to insert revisions into a looseleaf binder every two weeks, as was necessary under the old method.

The new system calls for 15 regional volumes (much like those used in the military) to cover the adjunct United States, Puerto Rico and the Virgin Islands. Each volume—complete with all revisions to date—is issued every 56 days. Midway between issues a "Change Notice" volume with interim revisions is published. Whenever a new volume comes out the pilot discards the previous volume (and its associated Change Notice volume).

The 15 bound volumes may be ordered as a set, individually, or in any combination or number to meet the user's needs. Pages are 5¼ by 8½, bound at the top edge, similar to those used in the military. Write for an order form to:

Distribution Division C-44
National Ocean Survey
Riverdale, Md. 20840
Tel.—301-436-6993

NOTICE TO SUBSCRIBERS: Disregard Renewal Price For FAA GEN. AV NEWS

If you have received a recent renewal notice that included a price increase to $14.00 per year, PLEASE DISREGARD.

The Government Printing Office, which controls the price of all government publications, determined that such an increase was necessary. However, GPO has since agreed to an FAA plan which will allow the subscription price to remain at $6.20 per year as it has been for the past four years.

Holding the price line will necessitate going to bi-monthly issuance. By trimming "fat" with a new format we will continue to bring you approximately the same amount of safety information per year as we have in the past.

NOTE: Readers who have already renewed their subscriptions at the higher rate will receive refunds. If you failed to renew because of the apparent price rise (or any other reason) use the order form on page 10 to re-order.

• The Last Mile

I am interested in a statement in "The Last Mile" in your May issue of FAA GENERAL AVIATION NEWS which says, "Investigators concluded that the aircraft, upon encountering such a wind shear, would have tended to pitch nose down . . ." I have always believed that wind, by itself, has no effect on airspeed—or trim—but just affects ground speed. Also, when we talk about wind shear, is it a horizontal or vertical discontinuity? Please explain, and if possible refer me to some articles on the subject of wind shear and its aerodynamic effects.

A. H. Clancy
Los Altos, Cal.

Airspeed is not affected by the movement of outside air (wind) if the wind is constant. Wind shear, however, involves an abrupt or sudden change in wind direction and/or speed. Due to the inertia of the aircraft, there is an inevitable lag in responding to the sudden increase or decrease of wind, resulting in a temporary gain or loss of airspeed. The aircraft will also have a pitching tendency in the direction of compensation for the airspeed change—i.e. if airspeed has been lost, the nose will pitch down, and vice versa.

Wind shear can occur in either a horizontal or vertical plane, sometimes both, as in or near thunderstorms. Vertical wind shears are often called updrafts and downdrafts. For further information on the subject consult FAA Advisory Circular 'Low Level Wind Shear" (AC 00-50) available free from DOT/FAA Distribution Unit, M-443.1, Washington, D.C. 20590. Additional details can be found in the book "Aviation Weather" which is available from Government Bookstores or by mail from U.S. GPO, Washington, D.C. 20402. Price is $4.55.

• Static Comment

Regarding your June article "Don't Give Up the Ship" I offer the following: By his own account of the static system failure, the pilot had not used his alternate static source in months, and was not even sure of its exact operation. This incident presents a powerful argument for thorough familiarization with all emergency systems and procedures during checkout, plus periodic reviews of procedures and regular equipment checks during preflight.

J. Nicolucchi
Ronkonkoma, N. Y.

• Re: Margin for Error

Your article "Margin for Error" in July contains the most meaningless group of numbers I have ever heard the term "statistics" applied to. How can a meaningful comparison be made between a 25-hour block of time and a 2,000-hour block? The general theme of the article, that high-time pilots still have a lot of accidents, may be true; but the compilation of numbers that is provided in the article doesn't seem to prove a thing.

John Ampleman
Chesterfield, Mo.

The figures were not meant to "prove" anything, but simply to indicate the frequency of accidents occurring within certain categories of flying experience. The article also suggested the kind of errors that experienced pilots are most likely to make—in response to reader requests for such information.

If we had access to data that would enable us to compare rates of accidents vs. hours flown, within experience groups, we could develop much more meaningful statistics. However, to our knowledge this data is not available.

• Displace or Relocate?

With reference to "The Hole Story" in the July issue, shouldn't the runway threshold have been "relocated" rather than "displaced" when a hole developed in the pavement? According to the definition, the area behind a displacement line is available for takeoff run, taxiing or rollout (if landing from the other direction). I hardly think this area would be considered usable for those purposes.

Jim Harrison
Dayton, Ohio

As often happens in emergencies, the situation described in "The Hole Story" did not lend itself exactly or completely to any one existing procedure; those in charge had to make a quick judgment call as to what actions would be least dangerous and disruptive, and displacing the threshold seemed the better choice. True, the area behind the temporarily displaced threshold could not practically be used for takeoff or landing rolls. However, taxiing on it presented no problem and, in fact, allowed easy access to the usable portion of the strip. It would have been necessary to taxi back on the active runway had the area behind the new threshold been closed for all uses.

• The Right Houston

After all these months I would like to make a comment on an article in your October 1977 issue. In "Conflict Alert" you described what was then an experimental program to prevent mid-air collisions near airports. In the article you identify the location as Houston International; however, the photograph you use is that of Houston Intercontinental, *not* International (which is now called Hobby Field).

Also, have you done any articles on the work of flight instructors?

David Salyer
Pearland, Tex.

Location of the test program and also of the photograph was Houston Intercontinental.

We have not published any recent features on the work of flight instructors but might do so in the future if readers are interested.

• Why the Limit on AME's?

As a member of a Group Health Cooperative I was disappointed to learn that they cannot give me my pilot's physical exam because none of the physicians there are FAA Medical Examiners. I am further advised that FAA will not approve any additional AME's in this area. Is this true? If so, can you explain the rationale behind limiting the number of FAA-approved physicians in a particular area? I would think it would be better to have as many as possible.

Richard S. Russell
Madison, Wis.

It is true that only a limited number of doctors are designated Aviation Medical Examiners by FAA in each region. The number is determined by the FAA Regional Flight Surgeon, based on the number of pilots. One reason for the limited number is the high cost of administering the medical certification system, including the specialized training program. Another reason is to avoid having so many AMEs in an area that few of them see enough applicants to stay proficient in what is a fairly complicated evaluation.

Requirements do change from time to time, however, so doctors who are interested in becoming AMEs should write to the Flight Surgeon in their FAA Regional Office and ask that their names be kept for consideration when future openings arise.

FAA GENERAL AVIATION NEWS welcomes comments from our readers. No anonymous letters will be used, but names will be withheld on request. Address: FAA GENERAL AVIATION NEWS, AFS-807, Washington, D.C. 20591.

• Oxygen Followup

I am having a hard time understanding your article in July concerning a new low altitude oxygen inhalator that uses a nasal tube called a cannula in place of a face mask. Am I right that the item was submitted to FAA for approval and was refused, because an FAA-approved mask must cover both the nose and mouth? Please clarify.

Denard L. Gusler
Norfolk, Va.

Your confusion is the result of some words that were inadvertently dropped from the article during production. The facts are as follows: The oxygen inhalator in question has neither been approved nor rejected by FAA. If it is used at lower altitudes in conditions where the regulations do not require oxygen, approval is not necessary. On the other hand, at altitudes where oxygen is required by regulation (see FAR 91.32) the rules specify that an FAA-approved system be used, including a mask that covers both the nose and mouth. The nasal tube obviously does not meet the requirement under the present rules.

• Calling Black Airmen

I am compiling data for a book on "Black Airmen." I would appreciate any information from the turn of the century through the Korean War. I am particularly interested in Blacks who flew in the First and Second World Wars, or gave support to all-Black units such as the 99th, 332nd Fighter Wing and the 477 Composite Group. Any information concerning Black civil pilots during this period would also be appreciated.

Ben L. Henderson
2840 D St.
Hayward, Cal. 94541

INSTRUMENT CORNER

• Departure Runway

Prior to departing IFR from a controlled airport recently, I tuned in ATIS to get airport information and was surprised to find they did not give the departure runway. On a previous visit to that same airport I distinctly remember that ATIS *had* included the departure runway. Why the difference? Do the controllers just record anything they feel like? I personally feel it helps to know which runway you will be using for takeoff before you call for taxi clearance—especially on an instrument flight.

Karl Snyder
York, Pa.

At airports where a single ATIS frequency is used for arrival and departure information, the departure runway is only given if it is different from the landing runway. If ATIS advises landings are being made on Runway 6 you may assume that the same runway is being used for takeoff unless you are told otherwise.

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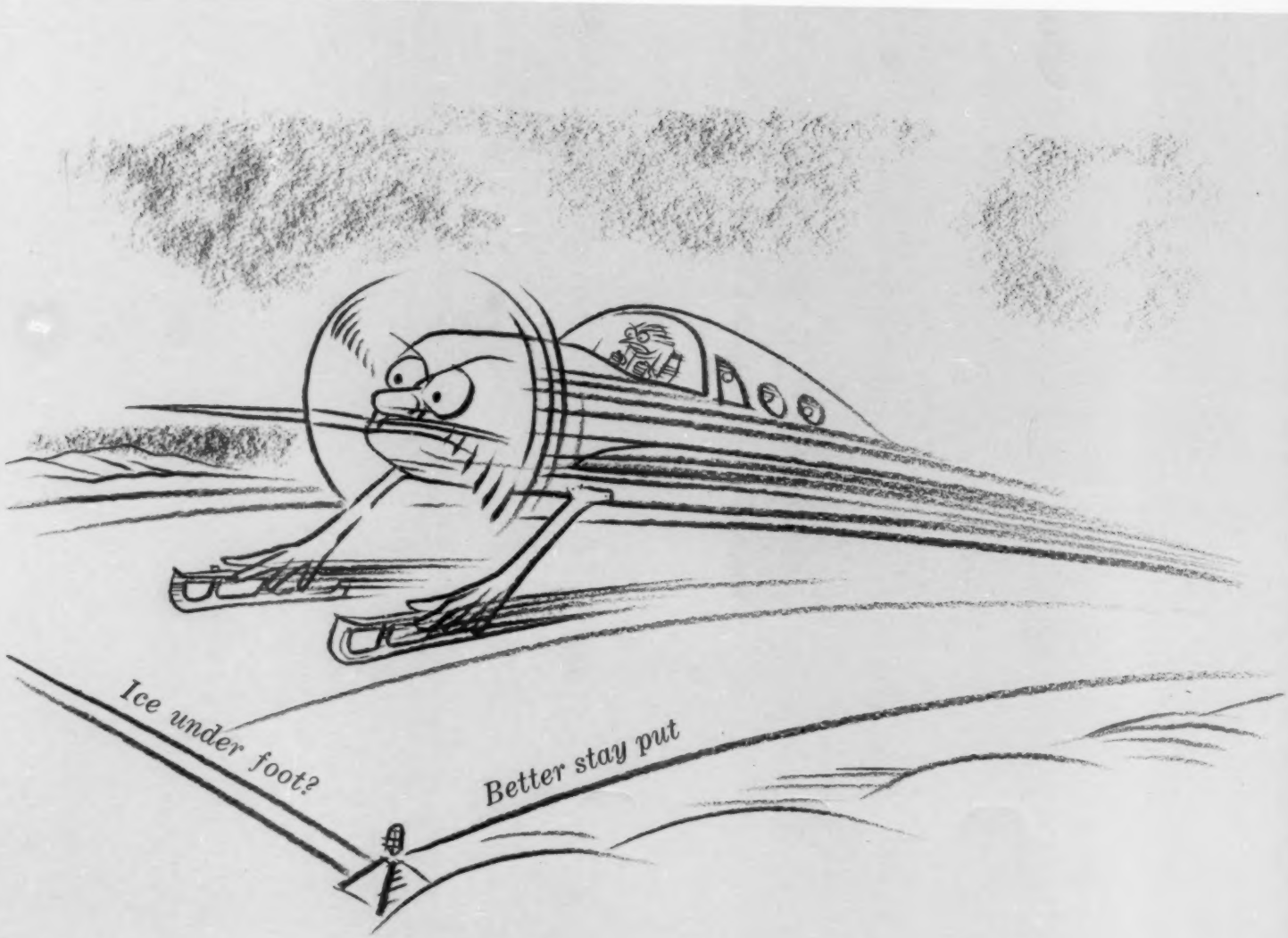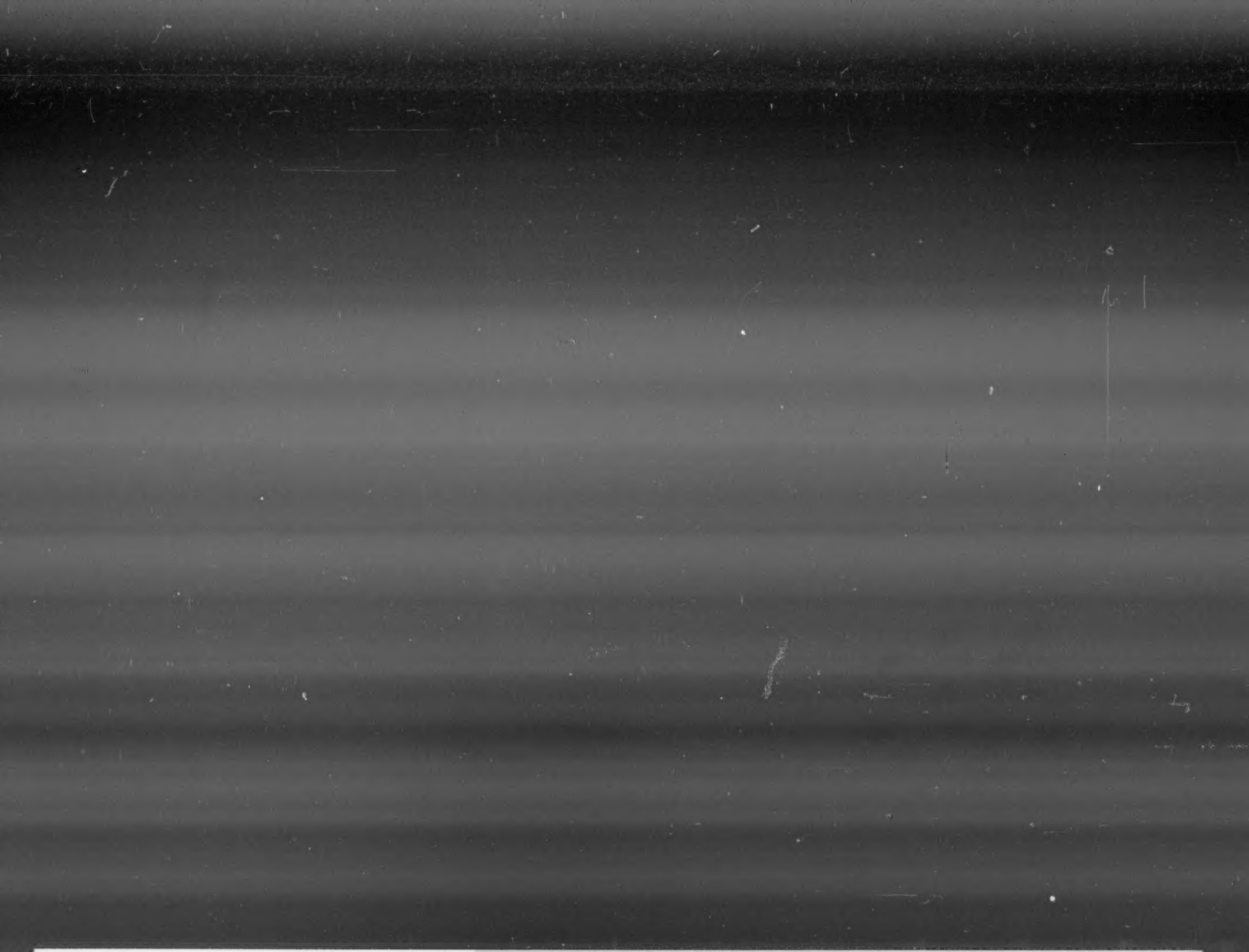
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